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# Egg Shells Good Poultry Feed

*In Tests They Were Equal to Oyster Shells  
For Either Laying Hens or Growing Chicks*

By H. L. WILCKE

**IOWA POULTRY PRODUCE** plants break out about 12 million dozen eggs a year. That leaves a lot of egg shells to be disposed of in some way. If these could be sold at a fair price, then egg buyers could afford to pay farmers a bit more for eggs. In the past, the shells have been a total loss to the egg breaker and, consequently, to the farm producer of eggs.

Egg shells are 93 percent calcium carbonate, and since calcium carbonate supplements in some form are needed in both growing and laying rations, feeding the shells back to the poultry seems the logical outlet if the shells could be processed at a sufficiently low cost to allow them to compete with oyster shells and high grade ground limestone.

In processing egg shells for feeding to chicks and laying hens, the shells must be freed as much as possible from adhering white, and they must be sterilized and ground. The sterilizing is of particular importance because certain diseases, such as pullorum, are transmitted through the egg. If the sterilizing was not well done there would be danger of spreading disease through the flock.

## Test With Layers

With these facts in mind, we carried on some work here at the Iowa Station to find out whether or not these processed egg shells could be used successfully for laying hens and for chicks in place of oyster shell or ground limestone. In brief we found egg shells were just as good as oyster shells for either laying hens or chicks. Our first work was carried on in 1938, using egg shell as the sole supplement in a laying mash.

Other stations have shown that such products as oyster shells and high grade limestone may be used

in poultry rations with equally satisfactory results. We did not consider it necessary to compare egg shell with more than one of these calcium carbonate supplements, and since most Iowa poultrymen use oyster shell, we made the comparison with that.

Two pens of approximately 30 pullets each were placed in identical laying quarters. One pen was fed the standard Iowa State College laying ration, and the other pen was fed the same ration except that egg shell was used as the source of calcium carbonate in place of oyster shell. The rations, then, were as follows: (These figures are given on the basis of a mixture of 500 pounds.)

### Mash

112 pounds	ground yellow corn
128 pounds	ground whole oats
100 pounds	ground wheat or standard wheat middlings
35 pounds	alfalfa meal
50 pounds	meat and bone meal
40 pounds	dried milk
25 pounds	soybean oilmeal
15 pounds	ground oyster shell
5 pounds	salt
5 pounds	fish liver oil

### Whole Grain

275 pounds	shelled corn
225 pounds	oats, barley or wheat

The egg shell was added at the rate of 3 percent in the laying mash (15 pounds of shell in 500 pounds of mash). In addition, it was fed to the one pen-free choice, in hoppers. The birds were weighed weekly, and at monthly intervals all of the eggs laid in 1 week were incubated. Fertility, date of the death of the embryo of eggs that did not hatch and hatchability were observed. Of course we also recorded the number of eggs laid.

The experiment was repeated in 1939 with similar groups of pullets. The summarized results of the 2 years' experiments with the pullets

showed no consistent difference in fertility and hatchability of the eggs produced with oyster shell and egg shell. Likewise, there wasn't any noticeable difference in the age of the embryos at the time of death in the fertile eggs which did not hatch.

In 1 year the birds fed oyster shell laid the most eggs and in the other year, the hens getting egg shell produced the most eggs. We concluded that egg shell and oyster shell used in our standard ration were of equal value for egg production—any difference was due to chance rather than the ration.

## Let Price Govern

In addition to trying egg shell for laying hens, we tried it in 1939 for chicks in comparison with oyster shell. All other portions of the ration and living conditions were the same. The differences in the rate of growth and percentage of crooked breast bones were not significant. Our chemists found the bone ash normal in both lots of chicks.

Some poultrymen have been hesitant about using egg shells for laying hens, because they feared that their use might lead to the habit of egg eating. In our experiments there was no evidence of this vice in either of the 2 years of work with the laying pullets fed egg shell.

The conclusion we have reached is that egg shell can be substituted in either laying or growing mash for oyster shell or high grade ground limestone with perfectly satisfactory results. The question, then, is merely one of price—if egg shell can be bought at a lower cost than oyster shell or limestone, use egg shell. If the price was about the same the poultryman might choose to buy "his own product" by using egg shell.